



Hawley's

Condensed Chemical

Dictionary

THIRTEENTH EDITION

Revised by

Richard J. Lewis, Sr.

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alkene. See olefin.

"Alkor" [Atlas]. TM for a synthetic, furan-type resin cement which is acid- and alkali-proof and used as a mortar cement where temperatures do not exceed 380F.

alkoxyaluminum hydrides. (H_nAlOR_{n+1}).

A group of reducing agents especially useful in converting epoxides to alcohols. Derived by reaction of aluminum hydride with the corresponding alcohol in tetrahydrofuran.

alkyd resin. A thermosetting coating polymer, chemically similar to polyester resins, conventionally made by condensation and polymerization of a dihydric or polyhydric alcohol (ethylene glycol or glycerol) and a polybasic acid (phthalic anhydride), usually with a drying oil modifier. The process requires heating at 230–250C for up to 12 hours. A new and quite different method utilizes epoxy addition polymerization, in which a mixture of glycidyl esters and organic acid anhydrides is heated with a metallic catalyst at 100C or less for only two to four hours. Cost and energy savings and improved application performance are realized by this process.

Use: Alkyd resins are used as vehicles in exterior house paints, marine paints, and baking enamels. Molded alkyd resins are used for electrical components, distributor caps, encapsulation, and a variety of similar applications.

alkyl. A paraffinic hydrocarbon group which may be derived from an alkane by dropping one hydrogen from the formula. Examples are methyl CH_3^- , ethyl $C_2H_5^-$, propyl $CH_3CH_2CH_2^-$, isopropyl $(CH_3)_2CH_3^-$. Such groups are often represented in formulas by the letter R and have the generic formula C_nH_{2n+1} . See aryl.

alkylaryl polyethyleneglycol ether.

Use: In surface-active agents.

See isoctylphenoxypropoxyethylene ethanol for a typical example of this class of compound.

alkylaryl sulfonate. An organic sulfonate of combined aliphatic and aromatic structure, e.g., alkylbenzene sulfonate.

alkylate. (1) A product of alkylation. (2) A term used in the petroleum industry to designate a branched-chain paraffin derived from an isoparaffin and an olefin, e.g., isobutane reacts with ethylene (with catalyst) to form 2,2-dimethylbutane (neohexane). The product is used as a high-octane blending component of aviation and civilian gasolines. (3) In the detergent industry, the term is applied to the reaction product of benzene or its homologs with a long-chain olefin to form an

intermediate, e.g., dodecylbenzene, used in the manufacture of detergents. It also designates a product made from a long-chain normal paraffin that is chlorinated to permit combination with benzene to yield a biodegradable alkylate. The adjectives *hard* and *soft* applied to detergents refer to their ease of decomposition by microorganisms. See biodegradability; detergent.

alkylation. (1) The introduction of an alkyl radical into an organic molecule. This was one of the early chemical processes used in Germany to furnish intermediates for improved dyes, e.g., dimethylamine. Other alkylation products are cumene, dodecylbenzene, ethylbenzene, and nonylphenol. (2) A process whereby a high-octane blending component for gasolines is derived from catalytic combination of an isoparaffin and an olefin. See alkylate (2); neohexane.

alkylbenzene sulfonate. (ABS).

A branched-chain sulfonate type of synthetic detergent, usually a dodecylbenzene or tridecylbenzene sulfonate. Such compounds are known as "hard" detergents because of their resistance to breakdown by microorganisms. They are being replaced by linear sulfonates.

See alkyl sulfonate; linear molecule; detergent; sodium dodecylbenzene sulfonate.

alkyl diaryl phosphate ester. See "Santicizer 141" [Monsanto].

alkyldimethylbenzylammonium chloride.

General name for a quaternary detergent.
See benzalkonium chloride.

alkylene. A phosphated long-chain alcohol.

alkyl fluorophosphate. See diisopropyl fluorophosphate.

alkylolamine. See alkanolamine.

alkyl sulfonate. (linear alkylate sulfonate; LAS).

A straight-chain alkylbenzene sulfonate, a detergent specially tailored for biodegradability. The linear alkylates may be normal or iso (branched at the end only), but are C_{10} or longer.

See sodium dodecylbenzene sulfonate.

alkyne. See acetylene hydrocarbon.

Allan-Robinson reaction. Preparation of flavones or isoflavones by condensing *o*-hydroxyaryl ketones with anhydrides of aromatic acids and their sodium salts.

allantoin. (glyoxyldiureide; 5-ureidohydrantoin).
 $C_4H_6N_4O_3$.